The Acacia Operation Project : a pilot activity for combating desertification and improving the livelihood of pastoralist in the arid rangelands of Kenya

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Introduction The Acacia Operation Project (AOP) was a pilot project supporting food security and rural development of gums and resins in the African Sahelian countries of Burkina Faso , Chad , Kenya , Niger , Senegal and Sudan (AOP document , 2003) . It was a preparatory phase of a 10-year programme in the framework of the Network for Natural Gums and Resins in Africa . The overall objective was to contribute to sustainable development and food security and to combat desertification through the promotion and integration of gums and resins in rural economies . In Kenya , the project was piloted in the Samburu and Marsabit Districts from 2004-2006 . The specific aim was to rehabilitate degraded land by planting *Acacia senegal* using novel water harvesting technologies and improving livelihoods through promotion of gum and resin production . This paper reports on outcomes , challenges and lessons learnt and implications for long term programme engagement in Kenya .

Materials and methods Initial work started in 2004 with meetings and participatory rural appraisals (PRAs) to sensitize and mobilize stakeholders about the project and the need to improve natural resources utilization . Local Project Management Committees (PMCs) were set up to assist and manage the project . Thereafter establishment of micro-basins and planting of the basins with *Acacia senegal* trees and drought tolerant crops commenced . Other activities included range-wide collection of germplasm for planting , capacity building for community groups , biophysical characterization of the soils in the sites , protection of planted sites , monitoring performance and survival of seedlings , training on utilization of drought tolerant crops , and evaluation of alternative livelihood systems . Educational tours were also conducted for the PMCs to facilitate technology transfer .

Results and discussion Sensitization meetings encouraged all stakeholders to embrace the project . As a result , the community donated land for project activities . A total of 20 sites totalling 285 ha with 54 ,000 micro-basins were ploughed and planted with various dryland trees and crops , depending on the site . A total of 1208 individuals were trained on various subjects including tree propagation techniques , seed collection , and crop and tree production . Crop performance was dismal except in Sereolipi where performance for beans , cowpeas , green grams and watermelon was very good in the short rainy season of 2004 and in Laisamis where cowpeas and sorghum did well during the long rainy season in 2005 . In all other sites there was complete crop failure exacerbated by the 2005-2006 drought . *Acacia senegal* performance varied according to site with better germination and growth on rocky and sandy sites . Drought resulted in high seedling mortality in all sites , necessitating replanting . Livestock and wildlife interference meant that the plots had to be protected , which increased costs .

Conclusions Results showed that *A . senegal* can be successfully established in the region . However , biophysical characterisation is essential to provide a guide to the suitability of sites for gum-producing trees . Due to climatic uncertainties , project duration should be longer , say 10 years . Although crop production was limited by low rainfall , cowpeas , millet and green grams were promising in years of normal rain . More trials must be completed to provide recommendations on integration of crops into the *A . senegal* areas . Wildlife menace and soil salinity are also important challenges facing farmers in these areas . Cultural bias towards livestock is a major challenge in mobilising the community towards plantation agro-silvopastoralism . Since economic benefits from *A . senegal* are realisable after about 5 years when gum production starts , motivation for local participation can be guaranteed if support is given to the community to exploit existing natural plantations by linking them to markets and providing credit to producer associations . Similarly income-generating activities should be promoted and supported .

Reference

Acacia Operation (2003) . Support to food security , poverty alleviation and soil degradation in the gums and resins producer countries . *Project Document GTFS/RAF/387 /ITA* . Trust Fund for Food Security and Safety , FAO .